Documentation for the Lamont Pumping SeaSoar Data files
Period 25 November - 8 December, 1997
In the Ross Sea during Cruise 97/8 of RVIB Nathaniel B. Palmer

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This data report lists various biogeochemical parameters measured in the Ross Sea during the AESOPS project of the US JGOFS program using the Lamont Pumping SeaSoar (LPSS) in the period November 25 through December 8, 1997. Spatially high resolution data were obtained in the upper 200 meters of water during the early stages of phytoplankton blooms in the Ross Sea. Over the two week period, a total of 4 successful "tows" have been made near and along the line 76°30' S, near 175°E in order to document the initiation and progression of the blooms. During each "tow" which lasted for about 24 hours covering a distance of about 275 km, the following properties were measured in seawater; temperature, salinity, pressure, PAR, chlorophyll-a, oxygen, pCO_2, (nitrate+nitrite), phosphate and silicate. Of these properties, the temperature, pressure, PAR, chlorophyll-a and oxygen were measured using in situ sensors aboard the SeaSoar fish; pCO_2, and the concentrations of (nitrate+nitrite), phosphate and silicate were determined in the seawater pumped continuously (~ 7 liters/min) from the fish to aboard the ship, using respective analyzers located in the ship's laboratories. The salinity was determined at two places using identical sensors; one aboard the fish and the other aboard the ship for the pumped water. A comparison of these salinity data allowed us to determine the location of the pumped water accurately. Tows 3, 4 and 6 were run along an east-west transect located along the 76^o 30'S latitude over a distance of about 275 km, and the data files are organized according to the "tow" number. Each file contains data from the time the system was stable until it was shut down for retrieval, and the start time and the end time for each tow are listed in Table 1. The measurements have been interpolated and gridded, and each parameter is contained in a file for each tow. There is no file for dissolved oxygen in Tow 3 because of malfunction of the sensor. Tow 5, unlike others, were run along five short north-south lines in order to document the meridional distribution of the properties. The data consist of five gridded north-south sections connected by short east-west ones, and each of these sections is contained in a separate file. The complete list of files is attached as Appendix I.

Table 1. Start and end times for each of the four LPSS tows in 1997.

Tow Number	Start Julian Date	End Julian Date
3	329.0172	330.1666
4	336.333	337.374
5	339.333	340.549
6	341.459	342.374

The parameters and the units used in these data files are as follows:

Temperature = *in-situ* temperature, degrees Celsius.
Salinity = reported on the Practical Salinity Scale.
PAR = Photosynthetically Active Radiation, microEinsteins per second per m^2.
Chlorophyll-a = chlorophyll-a concntration from fluorometry, micrograms per kilogram.
pCO_2 = partial pressure at the temperature reported in the Temperature field, microatmospheres.
(Nitrate + Nitrite) = the unit is micromoles per kilogram seawater.
Phosphate = the unit is micromoles per kilogram seawater.
Dissolved Oxygen = the unit is micromoles per kilogram seawater.
Silicate Drawdown = this is the difference between the measured value and the value in the deep water at the bottom of the cast. The unit is micromoles per kilogram seawater.
Sigma density = density at *in-situ* temperature, units are "sigma units", or (kilograms per cubic meter - 1000.0).

Publications:

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